

EJERCICIOS LÍMITES

Calcula los límites siguientes:

1) $\lim_{x \rightarrow +\infty} (x^5 - 7x^3 + 3)$

2) $\lim_{x \rightarrow +\infty} (-3x^3 + 2x - 5)$

3) $\lim_{x \rightarrow -\infty} \frac{2}{2x^3 + 4x + 4}$

4) $\lim_{x \rightarrow +\infty} \frac{x^2 - 3x + 4}{3x^2 - 5x + 3}$

5) $\lim_{x \rightarrow +\infty} \frac{3x^5 - 2x + 7}{4x^3 - 5x}$

6) $\lim_{x \rightarrow +\infty} \frac{3x^2 - 2x}{8x^3 - 5x^2 + 11}$

7) $\lim_{x \rightarrow 3} \frac{x^2 - 9}{x - 3}$

8) $\lim_{x \rightarrow 2} \frac{x^2 - 4x + 4}{x^2 - 4}$

9) $\lim_{x \rightarrow 0} \frac{x^3 + 3x^2 - 5x}{5x}$

10) $\lim_{x \rightarrow -5} \frac{x^3 + 125}{x + 5}$

SOLUCIONES

$$1) \lim_{x \rightarrow +\infty} (x^5 - 7x^3 + 3) = +\infty$$

$$2) \lim_{x \rightarrow +\infty} (-3x^3 + 2x - 5) = -\infty$$

$$3) \lim_{x \rightarrow -\infty} \frac{2}{2x^3 + 4x + 4} = 0$$

$$4) \lim_{x \rightarrow +\infty} \frac{x^2 - 3x + 4}{3x^2 - 5x + 3} = \lim_{x \rightarrow +\infty} \frac{x^2}{3x^2} = \frac{1}{3}$$

$$5) \lim_{x \rightarrow +\infty} \frac{3x^5 - 2x + 7}{4x^3 - 5x} = \lim_{x \rightarrow +\infty} \frac{3x^5}{4x^3} = \lim_{x \rightarrow +\infty} \frac{3x^2}{4} = +\infty$$

$$6) \lim_{x \rightarrow +\infty} \frac{3x^2 - 2x}{8x^3 - 5x^2 + 11} = \lim_{x \rightarrow +\infty} \frac{3x^2}{8x^3} = \lim_{x \rightarrow +\infty} \frac{3}{8x} = 0$$

$$7) \lim_{x \rightarrow 3} \frac{x^2 - 9}{x - 3} = \left(\frac{0}{0} \right) = \lim_{x \rightarrow 3} \frac{(x+3)(x-3)}{x-3} = \lim_{x \rightarrow 3} (x+3) = 6$$

$$8) \lim_{x \rightarrow 2} \frac{x^2 - 4x + 4}{x^2 - 4} = \left(\frac{0}{0} \right) = \lim_{x \rightarrow 2} \frac{(x-2)^2}{(x-2)(x+2)} = \lim_{x \rightarrow 2} \frac{x-2}{x+2} = \frac{0}{4} = 0$$

$$9) \lim_{x \rightarrow 0} \frac{x^3 + 3x^2 - 5x}{5x} = \left(\frac{0}{0} \right) = \lim_{x \rightarrow 0} \frac{x(x^2 + 3x - 5)}{x} = \lim_{x \rightarrow 0} (x^2 + 3x - 5) = -5$$

10)

$$\lim_{x \rightarrow -5} \frac{x^3 + 125}{x + 5} = \left(\frac{0}{0} \right) =$$

$$\lim_{x \rightarrow -5} \frac{(x+5)(x^2 - 5x + 25)}{x + 5} = \lim_{x \rightarrow -5} (x^2 - 5x + 25) = (-5)^2 - 5(-5) + 25 = 75$$

	1	0	0	125
-5	-5	25	-125	
	1	-5	25	0